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EXAMINER

LAM, CATHY FONG FONG

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| ART UNIT | PAPER NUMBER |
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1775

DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/632,152

Applicant(s)

BENNETT ET AL.

Examiner

Cathy Lam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 10-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

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1. The claims filed on February 24th 2004 was missing claim 9, the claims 10-17 have been renumbered as being claims 9-16, respectively.
2. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-9, drawn to a ceramic substrate, classified in class 428, subclass 212.
 - II. Claims 10-16, drawn to a method of manufacturing a dielectric ceramic substrate, classified in class 156, subclass 89+.

The inventions are distinct, each from the other because of the following reasons:

3. Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by a different process such as by forming individual layers of ceramic substrate having a desired composition, laminating the individual layers together then baking the laminate until dried. The process as claimed can be used to make a different product such as a decorative ceramic display (ie. a vase).
4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
5. During a telephone conversation with Atty: Ronald Goldman on March 16, 2004 a provisional election was made with traverse to prosecute the invention of group I, claims

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1-9. Affirmation of this election must be made by applicant in replying to this Office action. Claims 10-16 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

7. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear as to whether "99.6 per cent" and "96 per cent" are referring to weight of volume %? Clarification is required.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

9. Claims 1-4 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Polis et al (US 6531209).

Polis discloses a discrete powder particles dispersed in a binder to form a layer. The discrete powder particles are ceramic powder in a predetermined amount; the powder suspended in an organic adhesive (col 2 L 39-43). The ceramic powder is mainly comprised of Al_2O_3 filler material, another ceramic (or dielectric) material may be included (col 4 L 43-45 & L 51-53).

Polis in Fig 3 shows three layers of Al_2O_3 powder in binder are bonded together. Each layer has a predetermined amount of alumina powder in the binder material. The center layer has the filler amount that is between the two outmost layers (col 5 L 55-63 & col 6 L 43-50).

After sintered, the layers bonded together becomes indistinguishable. The prior art Figures show the layers are flat.

10. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Baccini (US 6017410).

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Baccini discloses a multilayer green tape circuit board. The circuit board comprised of a plurality of green tape foils and circuit. The circuit is formed on one or both surface(s) of the green tape foil(s) (col 1 L 15-18).

The green tape foil is comprised of alumina and solvents. Two green tape foils that have analogous material are bonded together by melting action (col 1 L 15-17 & col 2 L 27-30).

The prior art Figures show that the green tape foils are flat.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Polis et al (US 6531209) in view of Baccini (US 6017410).

Polis teaches a plurality of layers bonded together, each layer is comprised of a ceramic filler particles, a binder and a dielectric material (col 4 L 39-53).

The ceramic filler particles are alumina. Each layer has a predetermined amount alumina particles in the binder.

Polis in Fig. 3 shows the center layer has a ceramic filler amount that is between the ceramic fillers in the upper layer and the lower layer (col 6 L 43-50).

Polis however does not teach any conductive layers.

Baccini teaches a green tape circuit comprised of a plurality of green tape foils and circuits.

The circuits are formed onto the surface(s) of the green tape foils. The green tape foils are made of alumina and solvent. The alumina green tape foil is placed onto another alumina green tape foil which has a like or analogous material, are heat and pressure bonded to each other by melting action (col 1 L 15-18 & col 2 L 27-30).

The prior art teach the present invention but is silent about weight % of the aluminum oxide in each layer nor do they teach any thin film conductor or thick film conductor.

In view of the prior art teachings, one skill in the art would choose two similar composition green sheets to be adjacent to each other because similar composition would have similar shrinkage during sintering or firing. The examiner takes the position that 96 wt% and 99.6 wt% are similar in composition.

Furthermore, since applicant has no detail showing or describing the thick film and thin film conductors, the examiner takes the position that thin and thick are obvious variants of the prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cathy Lam whose telephone number is (571) 272-1538. The examiner can normally be reached on 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Cathy Lam
Primary Examiner
Art Unit 1775

cfl
March 19, 2004